LISTING OF THE CLAIMS

The following listing, if entered, replaces all prior versions of the claims in the present application.

1. (Currently Amended) A method comprising:

~~replicating data from a first volume to a second volume, wherein the replicating~~

comprises copying to the second volume only data from regions of the first volume that are modified by application-driven update operations, wherein the application-driven update operations are initiated by an application managing data in the first volume;

while the replicating the data from the first volume is being performed, detecting a change to a first region of the first volume, wherein the change is caused by a restore operation to restore the first volume from a third volume, wherein the restore operation is not an application-driven update operation initiated by the application;

in response to the detecting, adding information identifying the first region to a data structure, wherein the data structure identifies regions of the first volume that are designated for replication, wherein the adding is performed while the replicating is being performed; and

in response to the adding the information to the data structure, replicating data from the first region of the first volume to the second volume, wherein the replicating the data from the first region is performed while the replication of the data from the first volume is ongoing, and wherein the replicating the data from the first volume, the detecting, the adding, and the replicating the data from the first region is performed by a computing device implementing a replication facility.

~~determining that a change occurred to data in a first region of a first plurality of regions~~

~~of a first volume, wherein the change resulted from a restore operation; and~~

~~in response to determining that the change occurred, updating information identifying a~~

~~set of regions designated for replication to a second volume, wherein subsequent~~

~~to the updating the information, the first region is included in the set of regions~~ ~~designated for replication to the second volume~~.

2.   (Canceled)

3.   (Currently Amended) The method of claim [[2]] <u>1</u> wherein the third volume is a snapshot of the first volume at one point in time.

4.   (Canceled)

5.   (Canceled)

6.   (Canceled)

7.   (Canceled)

8.   (Canceled)

9.   (Canceled)

10.   (Currently Amended) The method of claim [[7]] <u>1</u> wherein the <u>first volume is</u> ~~data are~~ accessible <u>by the application</u> during the replicating.

11.   (Currently Amended) The method of claim [[7]] <u>1</u> wherein the <u>first volume is</u> ~~data are~~ accessible <u>by the application while being restored from the third volume</u> ~~during the restoring~~.

12.   (Canceled)

13.   (Canceled)

14.   (Currently Amended) A system comprising:
<u>computer-implemented means for replicating data from a first volume to a second volume, wherein the replicating comprises copying to the second volume only data from regions of the first volume that are modified by application-driven update operations, wherein the application-driven update operations are initiated by an application managing data in the first volume;</u>

computer-implemented means for detecting a change to a first region of the first volume while the data is being replicated from the first volume, wherein the change is caused by a restore operation to restore the first volume from a third volume, and wherein the restore operation is not an application-driven update operation initiated by the application;

computer-implemented means for, in response to detection of the change, adding information identifying the first region to a data structure, , wherein the data structure identifies regions of the first volume that are designated for replication, and wherein the information is added while the data is being replicated from the first volume; and

computer-implemented means for, in response to the addition of the information, replicating data from the first region of the first volume to the second volume wherein the data from the first region is replicated while the data is being replicated from the first volume.

~~determining means for determining that a change occurred to data in a first region of a first plurality of regions of a first volume, wherein the change resulted from a restore operation; and~~

~~adding means for adding the first region to the set of regions designated for replication to a second volume, wherein the region is added by updating information identifying the set of regions designated for replication.~~

15.   (Canceled)

16.   (Canceled)

17.   (Currently Amended) A system comprising:

a processor; and

a memory coupled to the processor, wherein the memory stores program instructions executable by the processor to implement a replication facility, and wherein the replication facility is configured to:

replicate data from a first volume to a second volume by copying to the second volume only data from regions of the first volume that are modified by

application-driven update operations, wherein the application-driven update operations are initiated by an application managing data in the first volume;

while data from the first volume is being replicated, detect a change to a first region of the first volume, wherein the change is caused by a restore operation to restore the first volume from a third volume, and wherein the restore operation is not an application-driven update operation initiated by the application;

in response to detection of the change, add information identifying the first region to a data structure, wherein the data structure identifies regions of the first volume that are designated for replication, and wherein the information is added while the data from the first volume is being replicated; and

in response to the addition of the information, replicate data from the first region of the first volume to the second volume, wherein the data from the first region is replicated while the data is being replicated from the first volume.

~~a determining module to determine that a change occurred to data in a first region of a first plurality of regions of a first volume, wherein the change resulted from a restore operation; and~~

~~an updating module to update information identifying a set of regions designated for replication from the first volume to a second volume, wherein subsequent to the information being updated, the first region is included in the set of regions designated for replication to the second volume.~~

18.   (Canceled)

19.   (Canceled)

20.   (Canceled)

21.   (Currently Amended) A computer-readable <u>storage</u> medium comprising <u>program instructions executable to</u>:

replicate data from a first volume to a second volume by copying to the second volume only data from regions of the first volume that are modified by application-driven update operations, wherein the application-driven update operations are initiated by an application managing data in the first volume;

while data from the first volume is being replicated, detect a change to a first region of the first volume, wherein the change is caused by a restore operation to restore the first volume from a third volume, and wherein the restore operation is not an application-driven update operation initiated by the application;

in response to detection of the change, add information identifying the first region to a data structure, wherein the data structure identifies regions of the first volume that are designated for replication, and wherein the information is added while the data from the first volume is being replicated; and

in response to the addition of the information, replicate data from the first region of the first volume to the second volume, wherein the data from the first region is replicated while the data is being replicated from the first volume.

~~determining instructions to determine that a change occurred to data in a first region of a first plurality of regions of a first volume, wherein the change resulted from a restore operation; and~~

~~updating instructions to update information identifying a set of regions designated for replication from the first volume to a second volume, wherein subsequent to the information being updated, the first region is included in the set of regions designated for replication to the second volume.~~

22.   (Canceled)

23.   (Canceled)

24.   (Canceled)

25.   (New) The method of claim 1, wherein the data structure comprises a log.

26.   (New) The method of claim 1, wherein the data structure comprises a replication bitmap, and wherein the adding comprises performing a logical OR operation to combine the replication bitmap with a restoration bitmap identifying regions affected by the restore operation.

27.   (New) The method of claim 1, wherein the adding comprises combining the data structure and an additional data structure, wherein the additional data structure identifies regions of the first volume that are not synchronized with a snapshot of the first volume.

28.   (New) The method of claim 1, further comprising:

detecting a change to a second region of the first volume, wherein the change to the second region is caused by the restore operation, wherein information identifying the second region cannot be added to the data structure when the change to the second region is detected; and

causing the restore operation to fail, in response to the detecting.

29.   (New) The system of claim 17, wherein the data structure comprises a log.

30.   (New) The system of claim 17, wherein the data structure comprises a replication bitmap, and wherein the information is added to the data structure by performing a logical OR operation to combine the replication bitmap with a restoration bitmap identifying regions affected by the restore operation.

31.   (New) The system of claim 17, wherein the information is added to the data structure by combining the data structure and an additional data structure, wherein the additional data structure identifies regions of the first volume that are not synchronized with a snapshot of the first volume.

32.   (New) The system of claim 17, wherein the replication facility is configured to:

detect a change to a second region of the first volume, wherein the change to the second region is caused by the restore operation, wherein information identifying the second region cannot be added to the data structure when the change to the second region is detected; and

cause the restore operation to fail, in response to detecting the change to the second region at a time at which the information identifying the second region cannot be added to the data structure.

33.   (New) The computer readable storage medium of claim 21, wherein the data structure comprises a log.

34.   (New) The computer readable storage medium of claim 21, wherein the data structure comprises a replication bitmap, and wherein the information is added to the data structure by performing a logical OR operation to combine the replication bitmap with a restoration bitmap identifying regions affected by the restore operation.

35.   (New) The computer readable storage medium of claim 21, wherein the information is added to the data structure by combining the data structure and an additional data structure, wherein the additional data structure identifies regions of the first volume that are not synchronized with a snapshot of the first volume.

36.   (New) The computer readable storage medium of claim 21, wherein the program instructions are executable to:

detect a change to a second region of the first volume, wherein the change to the second region is caused by the restore operation, wherein information identifying the second region cannot be added to the data structure when the change to the second region is detected; and

cause the restore operation to fail, in response to detecting the change to the second region at a time at which the information identifying the second region cannot be added to the data structure.